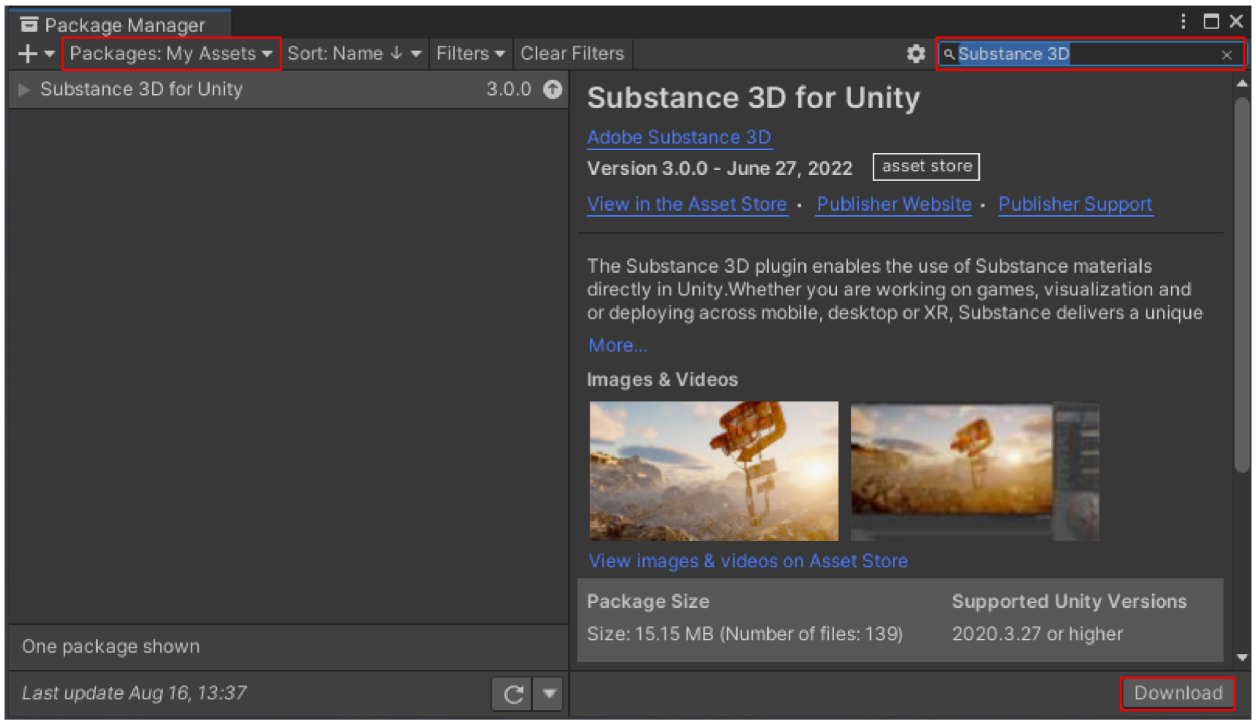
Thank you for purchasing this asset!

Getting Started

Download And Import The Substance Plugin:

Add the substance plug-in to your assets by visiting the “Substance 3D for Unity” Unity Asset Store page found here and click the “Add to My Assets” button.

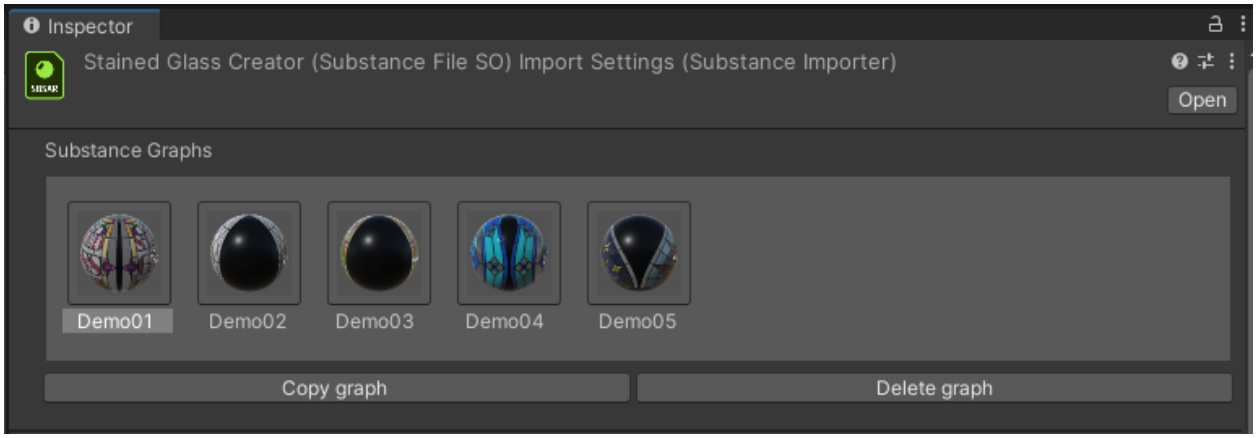
Once added to your assets, the Substance plug-in must now be downloaded and imported within your Unity project via the Package Manager window. Locate the plug-in under the “My Assets” category and click the download button to the lower right. After the download has completed you must then click the import button. The Unity Import Package window will appear, click import again.



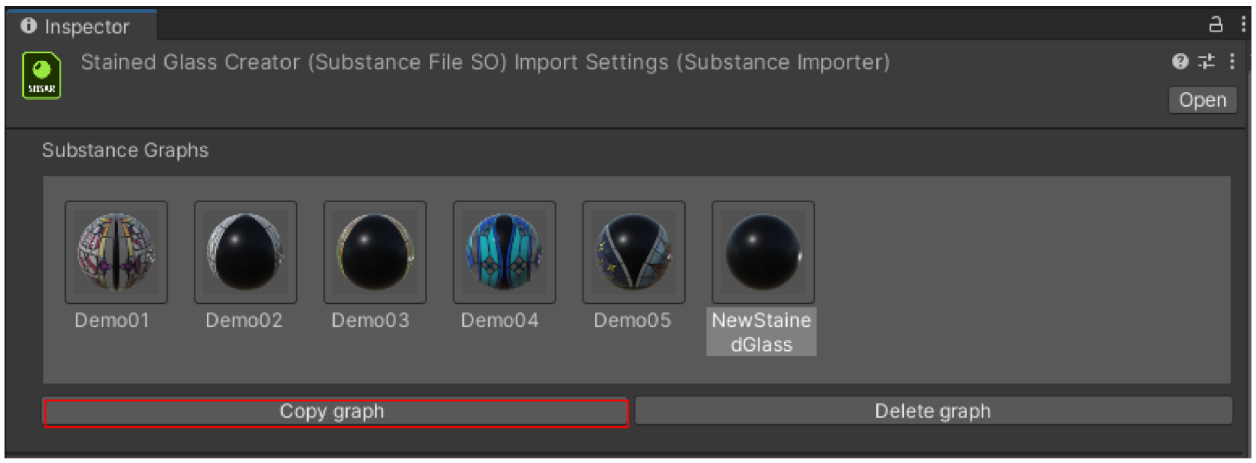
Create Your Substance Material

Copy/Rename/Delete Graphs:

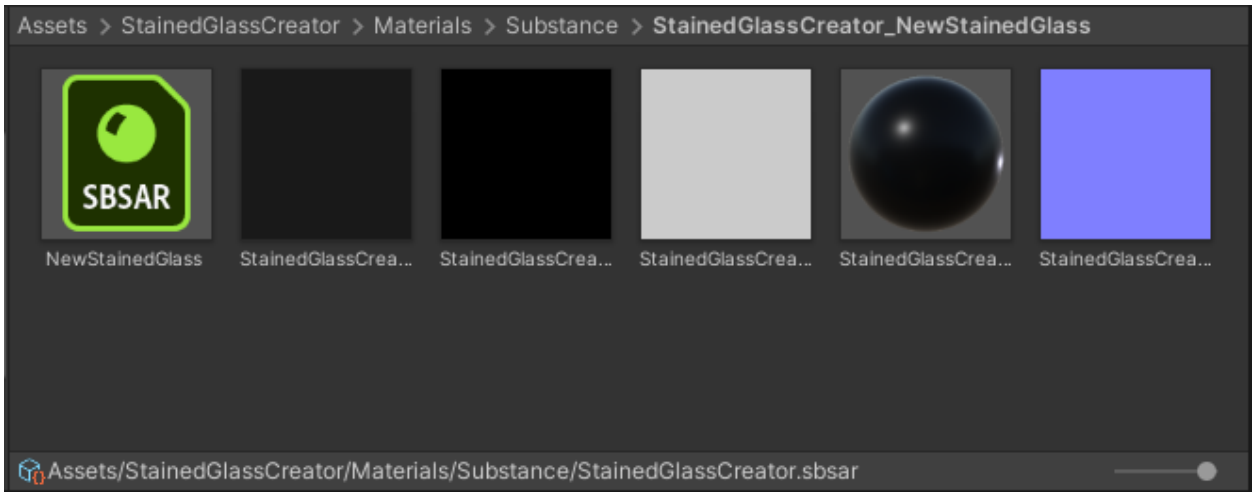
Locate and select the StainedGlassCreator (SBSAR file) at StainedGlassCreator/Materials/Substance to view the Substance Graph Manager in the Inspector Window where you should see the 5 demo graphs already visible.



Here you will be able to copy, rename and delete graphs. Create a new graph by selecting any of the existing graphs and clicking the “Copy graph” button. Rename your new graph if desired.



This will create a new folder that holds the graph instance, the material and all generated substance textures for that particular graph.

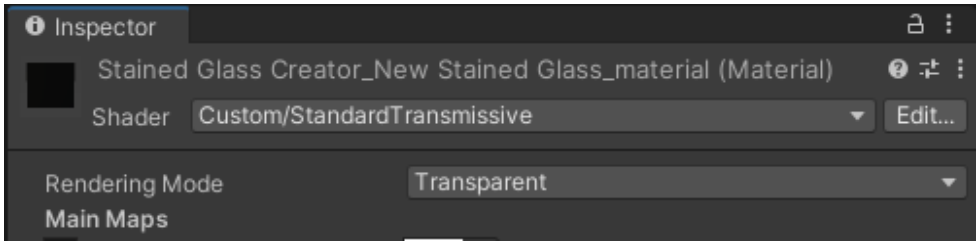


Assign the material:

Select the generated material to view its properties in the inspector window. For the shader you may leave it on Standard or select a different shader from the dropdown, including your own custom shader or shader graph. This asset comes with a bonus shader found under Custom/StandardTransmissive which is the Standard shader but can produce colored shadows when the scene lighting is baked.

Note: If using the StandardTransmissive shader, ensure that you select the relevant substance graph and enable the checkbox at the top of the inspector window named Generate All Outputs. This will force produce all textures of the substance material including the bonus transmission texture that can then be applied to the Transmission input of the material.

In either case you must also ensure that the rendering mode is set to Transparent. Now assign the material to your window mesh.



Note: The material will appear black until the color map is supplied. See color map below under Glass Properties. Also the height value of the material is typically far to high by default, so this will most likely have to be lowered.

Substance Material Parameters

To view and adjust the Substance material parameters, either select the StainedGlassCreator (SBSAR file) at StainedGlassCreator/Materials/Substance to view the Substance Graph Manager and then select a graph or select a graph directly from within its generated folder.

Glass Properties:

Glass Metallic - The metallic value of the glass (mainly used for non realistic stylized looks).

Glass Roughness - The roughness value of the glass.

Glass Opacity - The opacity value of the glass.

Opacity Random Amount - The number of glass panes affected by a randomized opacity value.

Opacity Random Range - This value represents the maximum transparency value allowed in the opacity random range. 0 = A random range between full opacity and full opacity (No

randomness visible), 1 = A random range from full opacity to full transparency. Only visible when the opacity random amount is greater than 0.
Opacity Random Contrast - The amount of contrast between the opacity values of the random range.
Opacity Random Seed - The random seed that controls which pane of glass receives which value of random opacity.
Emissive Strength - The intensity of the emission map. This can be controlled further through the material properties by adjusting the HDR color parameter next to the Emissive input. **TIP:** Try intensifying this value through the material properties by increasing the HDR color multiplier value above 1, ensuring the Global Illumination setting below it is set to Baked. This will allow the window color to impact surrounding geometry in the lightmap when the scene lighting is baked. After the lighting bake the emissive intensity can be dialed back down.

Note: At times you may notice that after adjusting the properties of the substance graph that the connected material will automatically set the emission back to realtime.

Color Map - Only this map is mandatory for the material to function. The RGB channels must contain the color of the glass areas. The alpha channel must contain full opacity/white for all glass areas of the window and 0 opacity/black for all areas that will be lead.
Opacity Map - This optional grayscale map will be multiplied against the Glass Opacity value. Black areas will show as completely transparent and white areas will show as the Glass Opacity value.

Note: For examples of these different image inputs, check out the demo textures included in the project found at StainedGlassCreator/Textures/SubstanceInputTextures

Color Adjustment:

HSL Adjustment - Uniformly adjust the hue, saturation and luminance of the inputted RGBA Map.
HSL Random - Randomly adjust the hue, saturation and luminance of the inputted RGBA Map.
Random HSL Seed - The random seed that controls which pane of glass receives which value of random HSL.

Lead Properties:

Lead color - The color of the lead (mainly used for non realistic stylized looks).
Lead Metallic - The metallic value of the lead.
Lead Roughness - The roughness value of the lead.
Lead Normal Intensity - The intensity of the lead normals.
Lead Expand - Use this value if you wish to expand the width of the lead areas beyond what was specified in the inputted RGBA Map.
Lead Bevel Width - The width of the beveling applied to the lead.
Lead Smoothing - The amount of smoothing applied to the beveling of the lead.

Noise:

Noise Type - Select from a dropdown list of built-in noise styles to be applied to the glass.
Noise Intensity - The intensity of the noise normals.
Noise Scale - The scale of the noise pattern.
Noise Rotation Random - The amount of random rotation applied to the noise pattern of each pane of glass.
Multiply Map With Noise - Unchecked this will apply only the noise specified in the inputted Noise Map with the above noise parameters having no effect. Checked will allow the above noise and parameters to be multiplied by the inputted Noise Map.
Noise Map - This optional grayscale map can both act as an explicit custom noise map or (if the Multiply Map With Noise parameter is checked) be multiplied with the noise parameters where black would show no noise and white would show the full effect.

Bevel:

Bevel Width - The width of the beveling applied to the lead.
Bevel Intensity - The intensity of the bevel normals.
Bevel Smoothing - The amount of smoothing applied to the beveled normals of the glass.
Bevel Color Definition - Darkens the color of the beveled areas.
Bevel Multiplier Map - This optional grayscale map will affect the intensity of the bevel parameters. Black areas will show no beveling and white areas will show the full strength beveling effect.

Streaks:

Streak Intensity - The intensity of the color streak effect on the glass.
Streak Blur - The blur intensity of the streak effect.
Streak Scale - The scale of the streaking effect.
Streak Detail - The detail/complexity of the streak effect.
Streak Disorder - Use this value to vary the streak pattern.
Streak Warp Intensity - The intensity of a warping effect on the streak pattern.

Shadow:

Shadow Distance - The distance inward from the outer edge of each pane of glass the shadow will cover.
Shadow Blur - The blur intensity of the shadow effect.
Shadow Color - The color of the shadowing effect. Note that the alpha channel intensity will add to the opacity of the glass within the shadow area.

Grunge:

Grunge Distance - The distance inward from the outer edge of each pane of glass the grunge effect will cover.
Grunge Blur - The blur intensity of the grunge effect.
Grunge Color - The color of the grunge effect. Note that the alpha channel intensity will add to the opacity of the glass within the grunge area.
Grunge Random Seed - Use this value to vary the look of the grunge pattern.
Tile Grunge - This value controls how many times the grunge pattern will be tiled.
Grunge Balance - The balance of the grunge mask.
Grunge Contrast - The contrast of the grunge mask.

Damage:

Note: Due to the way the Substance material calculates the damage properties, it is best to adjust these parameters at the final intended texture resolution, otherwise switching the resolution afterwards will produce a different damage result.

Damaged Planes - This value controls how many of the glass panes will be affected by the damage effects.
Damaged Planes Random Seed - This value will randomize which planes are affected by the damage effects.
Cracks Random Seed - This value will randomize the placement of the different crack patterns.
Cracks Offset - The X and Y random positional offset intensity for each crack pattern.
Cracks Rotation - The random rotation intensity of the cracks.
Cracks Scale - The scale of the crack patterns.
Missing Shards - This value determines the quantity of missing glass shards.
Missing Shards Random Seed - This value will randomize which glass shards are removed.

Preset Handling:

Near the bottom of the substance graph properties inside the Inspector window are the options to export, import and reset the preset to default. A preset file has been included for each demo window found at StainedGlassCreator/Materials/Substance/DemoPresets.

Happy Stained Glass Making!